

PATENT SPECIFICATION

(11)

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 (31) Convention Application No. P 22 10 176.4
 (32) Filed 3 March 1972 in
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 (72) Inventor KLAUS WERNER FINKE

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(54) IMPROVEMENTS RELATING TO HOLDERS FOR GELS INCORPORATING VOLATILE MATERIALS

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The following corrections were allowed under Section 76 on 9 January 1975

Page 1, line 1, (71) for KUNSTOFF- read KUNSTSTOFF

THE PATENT OFFICE
4 February 1975

R 20261/5

15 in freshening the smell of the air in living and other rooms. It is particularly concerned with holders for this purpose of the kind which comprise a bottom part having a bottom wall which extends upwards from the bottom wall, and is provided with openings, and a top part with a top wall and an imperforate peripheral wall which depends from the top wall and the outside face of which is slidably within the peripheral wall of the bottom part to enable the top part to be adjusted in position upwards and downwards relative to the bottom part thus varying the uncovered areas of the openings in the bottom part.

30 In existing holders of this kind the top part forms, when moved fully downwards into the bottom part, with the bottom wall of the bottom part, a substantially totally enclosed space for holding the gel body. This largely prevents the unwanted escape of volatilized substance into the atmosphere. Also, by moving the top part upwards in the bottom part, the openings in the peripheral wall of the bottom part are progressively uncovered so that volatilized components of the gel body can reach the atmosphere at a rate determined by the extent of the openings uncovered.

45 In existing holders, the two parts of the holder, are held in the position in which they are set by frictional contact between

The object of the invention is to construct a holder of the kind described so that the gel body containing volatile substances can be stored without any additional covering for a fairly long time without the volatile substances escaping into the atmosphere.

To this end, according to this invention, in such a holder, the top wall of the top part is provided with an opening which is tightly closed by a removable cover, the internal surface of the peripheral wall of the bottom part and the external surface of the peripheral wall of the top part have mating screw threads to enable the top part to be screwed into the bottom part, a bottom edge portion of the peripheral wall of the top part is arranged to fit in an annular groove in the bottom wall of the bottom part to provide a seal when the parts are screwed fully together and the bottom wall of the bottom part has a projection which fits tightly in a recess in the bottom of the gel body.

With this arrangement the top part can be screwed so tightly into the bottom part that the junction between the parts is vapour-tight under pressure. Further, the gel body can be formed by pouring a liquid mass containing the volatile and gel-forming substances into the bottom part through the opening in the top wall of the top part, after which the liquid mass solidifies and

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SEE CORRECTION SLIP ATTACHED

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(54) IMPROVEMENTS RELATING TO HOLDERS FOR GELS
 INCORPORATING VOLATILE MATERIALS

(71) We, ROBERT FINKE KUNSTOFF-SPRITZGUSS-WERK, of 5950 Finnentrop 12/Lenhausen, West Germany, a Kommanditgesellschaft, organised under the laws of West Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to holders for holding gel bodies incorporating vapourising substances which are volatile at room temperature and atmospheric pressure for use in freshening the smell of the air in living and other rooms. It is particularly concerned with holders for this purpose of the kind which comprise a bottom part having a bottom wall which extends upwards from the bottom wall, and is provided with openings, and a top part with a top wall and an imperforate peripheral wall which depends from the top wall and the outside face of which is slidable within the peripheral wall of the bottom part to enable the top part to be adjusted in position upwards and downwards relative to the bottom part thus varying the uncovered areas of the openings in the bottom part.

15 In existing holders of this kind the top part forms, when moved fully downwards into the bottom part, with the bottom wall of the bottom part, a substantially totally enclosed space for holding the gel body. This largely prevents the unwanted escape of volatilized substance into the atmosphere. Also, by moving the top part upwards in the bottom part, the openings in the peripheral wall of the bottom part are progressively uncovered so that volatilized components of the gel body can reach the atmosphere at a rate determined by the extent of the openings uncovered.

20 25 30 35 40 45 In existing holders, the two parts of the holder, are held in the position in which they are set by frictional contact between

their peripheral walls. Since in this way reliably tight closure of the interior of the holder against internal vapour pressure by mere contact between the bottom edge of the peripheral wall of the top part and the bottom wall of the bottom part cannot be ensured, and consequently volatilized substances, albeit slowly, can force their way out, the holder is only charged with the gel body immediately before it is to be brought into use. To do this the gel body must first of all be removed from a vapour proof cover in which it is delivered to the user.

25 30 35 40 45 50 55 60 65 70 75 80 85 90 The object of the invention is to construct a holder of the kind described so that the gel body containing volatile substances can be stored without any additional covering for a fairly long time without the volatile substances escaping into the atmosphere.

To this end, according to this invention, in such a holder, the top wall of the top part is provided with an opening which is tightly closed by a removable cover, the internal surface of the peripheral wall of the bottom part and the external surface of the peripheral wall of the top part have mating screw threads to enable the top part to be screwed into the bottom part, a bottom edge portion of the peripheral wall of the top part is arranged to fit in an annular groove in the bottom wall of the bottom part to provide a seal when the parts are screwed fully together and the bottom wall of the bottom part has a projection which fits tightly in a recess in the bottom of the gel body.

With this arrangement the top part can be screwed so tightly into the bottom part that the junction between the parts is vapour-tight under pressure. Further, the gel body can be formed by pouring a liquid mass containing the volatile and gel-forming substances into the bottom part through the opening in the top wall of the top part, after which the liquid mass solidifies and

SEE CORRECTION SLIP ATTACHED

the opening is closed by the cover. As the liquid mass solidifies, it shrinks and frees itself from the peripheral wall of the top part and tightens firmly on to the projection on the bottom wall of the bottom part. Thus after solidification of the gel body the top part can be turned relative to the bottom part and shifted axially without carrying the gel body with it.

It is of no importance whether the liquid mass is solidified by cooling from a higher temperature to room temperature, by heating above room temperature when the mass is thermo-setting, by evaporation of solvents from the mass or by chemical or physical reactions between components of the mass.

To produce a particularly tight seal between the bottom part and the top part, preferably the bottom edge portion of the peripheral wall of the top part is tapered in thickness to enable it to fit in the annular groove with a wedge action.

In order to be able to close the opening in the top wall of the top part in a reliably tight manner after solidification of the gel body, there is preferably a cylindrical collar surrounding the opening in the top wall of the top part and the cover has a hollow cylindrical spigot which is a tight fit in the collar.

A vapour-tight closure between the collar and the spigot can also be brought about by one of them having an annular bead or ridge which fit against the other. This annular bead or ridge can also serve to prevent unintentional release of the cover by engaging resiliently in an annular groove in the other part or against the free edge of the other part.

An example of a holder constructed in accordance with the invention is illustrated somewhat diagrammatically in the accompanying drawings, in which:—

Figure 1 is a partly sectional side view of the bottom part; and,

Figure 2 is a similar view of the top part.

A bottom part 1 has a bottom wall 3 with a knob-like projection 4 in its centre, an annular groove 5 near its circumference and an annular collar 6 between the projection 4 and the annular groove 5. It also has a cylindrical peripheral wall 7 extending upwards from the circumference of the bottom wall 3. The wall 7 is imperforate for about the bottom third and above that is provided with slot-like openings bordered by narrow fillets 8. Above the level of the imperforate portion of the wall 7 and in the internal faces of the fillets 8 is an interrupted internal screw thread 9.

The projection 4 and the collar 6 engage in recesses in the underside of a gel body (not shown) which incorporates volatile substances and secures the body in position.

A top part 2 has a peripheral wall 11 the bottom part of which is cylindrical and is

arranged to fit into the bottom part 1. Above the cylindrical part, the wall 11 tapers slightly upwards as shown at 12. The cylindrical part of the wall 11 is provided with at least one turn of a screw thread 13 which is a somewhat tight frictional fit in the internal thread 9 in the bottom part 1. At the top of the tapering part 12 the peripheral wall of the top part 2 is provided all round with flat axially extending grooves 14 which enable the top part to be firmly gripped manually to facilitate turning the top part 2 in the bottom part 1 against friction to enable the two parts to be screwed firmly together. A top wall 15 of the part 2 is recessed below the top edge of the peripheral wall and has a central opening which is surrounded by a cylindrical collar 15a. This opening is tightly closed and sealed by a removable cover 16 which has a central hollow cylindrical spigot 16a fitting tightly into the collar 15a. The cover 16 extends up to the internal face of the peripheral wall of the part 2 which projects above the top wall 15 of the cup. In this way unintentional lifting of the cover 16 by grasping it from outside is prevented.

When the peripheral wall 11 is screwed fully into the wall 7, the bottom edge of the wall 11 engages tightly in the groove 5 so that the gel body is tightly sealed within the device.

Where any two parts seal against one another at least one part in each case is of a thermoplastic synthetic resin of low elasticity and compressibility. Additional means of sealing between the parts of the device can thereby be eliminated.

WHAT WE CLAIM IS:—

1. A holder for holding a gel body incorporating a volatile substance and allowing the substance to vapourise, the holder comprising a bottom part having a bottom wall for supporting the gel body and a peripheral wall which extends upwards from the bottom wall and is provided with openings, and a top part with a top wall and an imperforate peripheral wall which depends from the top wall and the outside face of which is slidable within the peripheral wall of the bottom part to enable the top part to be adjusted in position upwards and downwards relative to the bottom part thus varying the uncovered areas of the openings in the bottom part, wherein the top wall of the top part is provided with an opening which is tightly closed by a removable cover, the internal surface of the peripheral wall of the bottom part and the external surface of the peripheral wall of the top part have mating screw threads to enable the top part to be screwed into the bottom part, a bottom edge portion of the peripheral wall of the top part is arranged to fit in an annular

groove in the bottom wall of the bottom part to provide a seal when the parts are screwed fully together and the bottom wall of the bottom part has a projection which 5 fits tightly in a recess in the bottom of the gel body.

2. A holder according to claim 1, in which the bottom edge portion of the peripheral wall of the top part is tapered in 10 thickness to enable it to fit in the annular groove with a wedge action.

3. A holder according to claim 1 or claim 2, in which there is a cylindrical collar surrounding the opening in the top wall of 15 the top part and the cover has a hollow cylindrical spigot which is a tight fit in the collar.

4. A holder according to claim 3, in

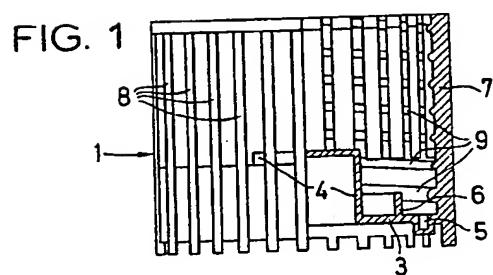
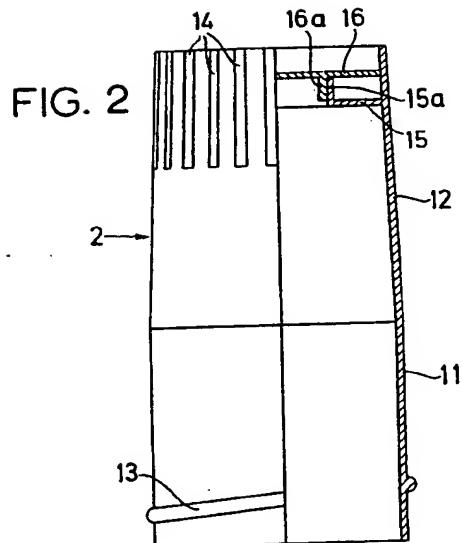
which the cover extends up to the internal face of a part of the peripheral wall which projects above the top wall of the top part. 20

5. A holder according to any one of claims 1 to 4, wherin of any two parts which seal against each other, at least one of the two parts is made of a synthetic resin material of low elasticity and compressibility. 25

6. A holder according to claim 1, substantially as described and as illustrated in the accompanying drawings. 30

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